Code No. G-13247/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VI - Semester (Main & Backlog) Examination, September 2025
Subject: Medical Chemistry - III

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Define and classify β-Lactam antibiotics?
2. Write the mechanism of action of Aminoglycosides?
3. What are β-Lactamase inhibitors, give examples?
4. Define Prodrugs?
5. Write the structure and uses of Chloroquine?
6. Write the mechanism of action of monobactams?
7. What are folate reductase inhibitors, give few examples?
8. Give the structure and uses of Para amino salicylic acid?
9. Write the applications of combinatorial chemistry?
10. Define QSAR?

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. (a) Define antibiotics? Write the classification and SAR of Pencillins?
    (b) Write the synthesis and uses of Chloramphenicol?
12. (a) Give the classification of anti-tubercular agents with examples?
    (b) Write the SAR of quinolones?
13. (a) Write the classification of Anti-fungal agents?
    (b) Give the synthesis and mode of action of Sulfacetamide?

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Give a note on epimerization of Tetracyclines?
15. Write a note on chemical degradation of cephalosporins?
16. Write the synthesis, mode of action and uses of Metronidazole?
17. Give the classification of Antimalarial agents with examples (write any one structure for each class)?
18. Write the synthesis MOA and uses of Isoniazid?
19. What are anthelmintics? Write the synthesis of Mebendazole?
20. Give a note on combinatorial chemistry?
21. Write the SAR and general synthesis of Sulphonamides?
22. Write the structure, synthesis and uses of Dapsone?

* * *

Code No. G-13252/PCI

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination, September 2025
Subject: Quality Assurance

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. What is the objective of NABL accreditation?
2. What is the purpose of ICH guidelines?
3. Differentiate between primary and secondary packaging materials giving suitable examples.
4. How will you calibrate a pH meter?
5. Explain the concept of QSEM.
6. What are the objectives of sanitation in a drug manufacturing area?
7. Define analytical method validation and list the parameters.
8. Explain the elements of QBD.
9. What are the advantages GMP?
10. What is Quality audit. Write different types of audits.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Describe the concept of TQM?
12. Define validation and explain the importance of validation.
    What are the different types of validation? Write a note on validation master plan.
13. Explain good warehousing practices (GWP).

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Classify the Complaints and write about the evaluation of complaints.
15. Explain the maintenance of sterile areas in pharma industry.
16. Explain the GLP protocol for the conduct of a nonclinical laboratory study.
17. Define and explain the contents of batch formula record.
18. Write about the personnel responsibilities in QA department.
19. Explain the QC tests for glass as a packaging material.
20. What are the benefits of ISO 9000? Add a note on ISO 14000.
21. What are the sources of contamination and mix up in pharmaceutical manufacturing?
    How one can control this type of problems?
22. Explain the location, construction and sanitation of plant.

* * *

Code No. G-13251/PCI

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination, September 2025
Subject: Pharmaceutical Biotechnology

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Define Immobilization. What are the types of immobilization?
2. What is protein engineering?
3. Write a note on DNA ligases.
4. What are nucleases? Explain the types nucleases.
5. What are vaccines? Enlist types of vaccines.
6. Write the preparation and uses of human Thrombin.
7. What are mutants? Types of mutants.
8. Write about foam control equipment.
9. Write a note on transposons.
10. Write the organisms responsible for the production of Amylases and Lipases.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Explain the production of insulin by rDNA technology.
12. Explain the production of penicillin by fermentation technology.
13. What is hybridoma technology? Explain the production of monoclonal antibodies.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Explain pBR322 and pUC vectors.
15. Write the applications of genetic Engineering in medicine.
16. Explain the stability of official vaccines.
17. Explain Enzyme linked immunosorbent Assay.
18. What is recombination? Explain general mechanism of recombination.
19. Explain the collection, processing and storage of whole human blood.
20. Explain the preparation of dried human plasma.
21. Explain type II and type III hypersensitivity reactions.
22. Explain the manufacture of dextran. Add a note on methods of size reduction of dextran.

* * *

Code No. G-13250/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VI - Semester (Main & Backlog) Examination, September 2025

Subject: Biopharmaceutics and Pharmacokinetics

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Write Henderson Hasselbach equation and explain the terms.
2. Differentiate tissue binding and protein binding of drugs.
3. List markers used in renal clearance.
4. List the official dissolution apparatus according to USP.
5. Explain Apparent volume of distribution.
6. If equation of the curve is $C=10.e^{-0.69t}$ for a drug administered by IV route and following one compartment open model, then calculate its biological half-life.
7. What is Flip-Flop phenomenon and how it is useful in method of residual.
8. Write formulas for calculating loading dose and maintenance dose.
9. Define non-linear pharmacokinetics.
10. How do you calculate Creatinine Clearance.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Derive mathematical equations to calculate pharmacokinetic parameters for a drug administered by IV infusion, given blood data, assuming drug follows one compartment open model.
12. Discuss about factors affecting protein-drug binding and clinical significance of protein binding of drugs.
13. Derive Michaelis-Menten equation and how do you estimate Km and Vmax.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Discuss about Passive absorption and Active absorption of drugs.
15. Describe tissue permeability of drugs.
16. Write a note on kinetics of protein-drug binding.
17. Describe non-renal excretion of drugs.
18. Discuss about *in-vitro-in-vivo* (IVIVC) correlations.
19. Explain methods of adjustment of dose and dosage regimen in patients with hepatic failure.
20. A 650mg I.V.dose of a drug is administered to a 65kg subject, the plasma drug concentration was found to decline biexponentially. The equation that best describes the drug kinetics $C=67.e^{-14t}+ 33.e^{-3t}$; C is in mg/lt Calculate the different volumes of distribution Vc,Vp, Vd_{β}, Vd_{area}, Vd_{ss}.
21. How do you calculate absorption rate constant, Ka by using Wagner Nelson method.
22. Describe factors causing non-linearity.

Code No: G-13249/PCI

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Main & Backlog) Examination, September 2025
Subject: Herbal Drug Technology

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Define Herbal medicinal products.
2. What are bhasma and lehya?
3. Write the side effects and interaction of pepper as health food.
4. Define breeder's right.
5. Name any two natural sweeteners with biological source.
6. Mention the evaluation of herbal syrups.
7. What are the source, active constituents and uses of alfalfa?
8. What are ideal requirements of bhasma?
9. Significance of preparation of herbarium.
10. Mention health benefits of spirulina.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Explain the good agriculture practices in the cultivation of medicinal plants.
12. Explain in detail about the scope and types of Nutraceutical products available in the market.
13. Explain in detail the concept of Ayurvedic system of medicine.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. What are Nutraceuticals? Discuss on the present market scenario and scope of Nutraceuticals.
15. Explain the method of preparation of Aristas.
16. Discuss the objective and components of GMP.
17. Describe the role of honey as health food.
18. Give the side effects and interactions of Ginkgo Biloba.
19. Define herb. Explain the method of processing of Herbal raw materials.
20. Write a short note on binders and diluents used as herbal excipients.
21. Describe the role of herbs in dental care.
22. Discuss in brief on "Sodhana" process.

* * *

Code No: G-13248/PCI

FACULTY OF PHARMACY

B. Pharm (PCI) VI - Semester (Main & Backlog) Examination, September 2025

Subject: Pharmacology-III

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Define Asthma and COPD.
2. What are Biosimilars? Give examples.
3. Write the mechanism of action of Co-trimoxazole.
4. Write a note on lead poisioning.
5. What are common adverse drug effects of chemotherapeutic agents?
6. Differentiate between tolerance and Resistance.
7. Write the mechanism of acton of Chloramphenicol.
8. Classify antidiarrhoels with examples.
9. What is MRSA?
10. What is circadian rhythm? Mention its importance in pharmacotherapy.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Classify Cephalosporins with examples. Write the mechanism of action, pharmcokinetics, adverse effects and uses of cephalosporins.
12. Write in detail about the pharmacological therapy of COPD.
13. Classify broad spectrum antibiotics with eamples. Write in detail about mechanism, adverse drug reactions and usesof penicillins.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Classify anti-ulcer drugs. Write a note on proton pump inhibitors.
15. Write the mechanism of action and uses of sulphonamides.
16. Write the prophylaxis of malaria.
17. Classify anti tubercular drugs with examples and explain the pharmaccology of the drugs.
18. Brief up the mechanisms of antifungal drugs.
19. Write the toxicity of quinolones.
20. What are immunostimulants? Write a note on immunoglobulins and their uses.
21. What are cell cycle inhibitors? Explain with examples.
22. Write the mechanism of action and uses of digestants and carminatives.

****

Code No: G-13105/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VI - Semester (Backlog) Examination, March 2025

Subject: Quality Assurance

Time: 3 Hours **Max. Marks: 75**

PART - A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. What is TQM?
2. Mention elements of QbD.
3. List out the benefits of ISO accreditation.
4. Name different personnel records in a pharmaceutical industry.
5. Name few equipment used in pharmaceutical industry.
6. Why GLP is necessary?
7. What are to be mentioned in a complaint to a pharma industry?
8. What is quality audit? Write different types of audits?
9. Write the significance of validation.
10. Mention different distribution records?

PART - B

Note: Answer any two questions **(2 x 10 = 20 Marks)**

11. Discuss about ICH guidelines.
12. Discuss about different components of master formula.
13. What is Calibration? Write its significance and explain calibration of pH meter.

PART - C

Note: Answer any seven questions **(7 x 5 = 35 Marks)**

14. Write the procedure for NABL accreditation.
15. Explain the location, construction and sanitation of plant.
16. Write notes on maintenance of stores for raw materials.
17. Write quality control tests for glass containers.
18. Write notes on general provisions required to maintain GLP.
19. Discuss on recalling and waste disposal in pharma industry.
20. Explain about validation master plan.
21. Discuss on qualification of UV-Visible spectrophotometer.
22. Give informative notes on good warehousing practices.

****

Code No. G-13100/PCI

FACULTY OF PHARMACY

B. Pharmacy VI - Semester (PCI) (Backlog) Examination, March 2025

Subject: Medicinal Chemistry - III

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Write the mechanism of action of Pencillins?
2. Write the structure and uses of Chlortetracycline?
3. What are Macrolides, give few examples?
4. Give the applications of Prodrugs?
5. Write the structure and uses of Ciprofloxacin?
6. Write the mechanism of action of Acyclovir?
7. What are folate reductase inhibitors, give few examples?
8. Give the structure and uses of metronidazole?
9. Write the applications of combinatorial chemistry?
10. Define Partition coefficient, Hansch analysis?

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. (a) Define antibiotics? Write the classification and SAR of Cephalosporins?
    (b) Write the synthesis and uses of Chloramphenicol?
12. (a) Give the classification of antiviral agents with examples?
    (b) Write the synthesis and uses of Nitrofurantion?
13. (a) Write the classification and SAR of Sulphonamides?
    (b) Give the synthesis and mode of action of Diethylcarbamazine citrate?

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Give a note on epimerization of Tetracyclines?
15. Write a note on β-Lactamase inhibitors?
16. Write the synthesis, mode of action and uses of Chloramphenicol?
17. Give the classification of Antimalarial agents with examples (write any one structure for each class)?
18. Write the synthesis, MOA and uses of Isoniazid?
19. What are antifungal agents? Write the synthesis of Miconazole?
20. Give a note on combinatorial chemistry?
21. Write the classification of Anti-protozoal agents? Write the structure and uses of Tinidazole and Ornidazole?
22. Write the structure, synthesis and uses of Dapsone?

* * *

Code No. G-13104/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VI - Semester (Backlog) Examination, March 2025

Subject: Pharmaceutical Biotechnology

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. Define biosensors. Write the main components of biosensors.
2. Write a brief note on penicillinase.
3. Write about types of aerators in Fermenter.
4. What is protein engineering?
5. Differentiate exonucleases and endonucleases.
6. Describe the importance linkers and adapters.
7. Differentiate between exotoxins and endotoxins.
8. Define the following:
   a. Cosmid b. Toxoid.
9. Write a note on DNA ligase.
10. What are monoclonal antibodies? Mention its uses.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Write the significance of microbial biotransformation, Explain various methods of biotransformation.
12. Discuss the production of Penicillin by fermentation process.
13. Discuss the preparation & purification of Dextran, Plasma substitute.

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Discuss about PCR.
15. Describe in brief about cloning vectors.
16. Discuss type II Hypersensitivity and type III Hypersensitivity reactions.
17. Explain basic principles of genetic engineering.
18. What are mutations? Explain the types of mutations.
19. Write about IgG and IgE antibodies.
20. Describe the process of conjugation.
21. Explain the preparation of dried human plasma.
22. Explain the methods for immobilization of enzymes.

* * *

Code No. G-13103/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VI - Semester (Backlog) Examination, March 2025

Subject: Biopharmaceutics and Pharmacokinetics

Time: 3 Hours **Max. Marks: 75**

PART – A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. List the mechanisms of drug absorption through GIT.
2. Describe blood brain barrier for permeation of drugs.
3. Differentiate Phase I and Phase II metabolic pathways.
4. What are the objectives of bioavailability?
5. Explain Glomerular filtration rate and its clinical significance.
6. Define Pharmacokinetics.
7. Describe AUC calculation by Trapezoid method.
8. If dose administered in IV bolus is 500mg and plasma concentration is (Co) is 2.5µg/ml, calculate Vd in litres.
9. Write the equation for calculating peak plasma/serum concentration (Cp)max in extravascular administration.
10. Write Michaelis Menten equation.

PART – B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Describe non-renal routes of excretion of drugs.
12. Discuss about factors influencing drug absorption through GIT.
13. A dose of 500 mg of drug was given intravenously to a patient and following blood data was obtained. Assuming that the drug follows one compartment open model. Calculate all possible pharmacokinetic parameters.

Time (Hrs)	2	4	6	8	10	12	16	20
Plasma Concentration (µg/ml)	1.83	1.01	0.58	0.33	0.18	0.10	0.031	0.012

PART – C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Describe kinetics of protein binding.
15. Write a note on Carrier mediated transport.
16. Explain methods to enhance bioavailability of poorly soluble drugs.
17. Explain the various methods for assessment of bioavailability.
18. A drug whose $K_E = 0.02hr^{-1}$ and V_d=20Lts is infused to a patient at a rate of 3mg/hr for 8hrs. What is the concentration of the drug in the body 2 hrs after the cessation of the infusion?
19. Explain factors affecting renal excretion of drugs.
20. A dose of 100mg of a drug is administered by rapid intravenous injection to a 70kg healthy adult male. Assume that the drug follows a two-compartment model and can be described by the following equation $C=30\ e^{-1.5t} + 10\ e^{-0.15t}$ where c=µg/ml; t=hr. Calculate K_{12}; K_{21}; K_{13}; V_C; C_0.
21. Write a note on non-linear pharmacokinetics.
22. Write the significance of different volumes of distribution in two compartment open model.

* * *

Code No: G-13102/PCI

FACULTY OF PHARMACY

B. Pharmacy (PCI) VI - Semester (Backlog) Examination, March 2025

Subject: Herbal Drug Technology

Time: 3 Hours **Max. Marks: 75**

PART - A

Note: Answer all the questions. **(10 x 2 = 20 Marks)**

1. What are the objectives of IPR?
2. Define the term Nutraceuticals.
3. What are antioxidants and give their importance.
4. Write the significance of natural excipient.
5. Define Aristas and Asawas.
6. List the plant based the research institutes in India.
7. What are the advantages of Farmers rights?
8. Give the source and health benefits of Amla
9. Give the source and interactions of Pepper.
10. Write a note on Authentication of plants.

PART - B

Note: Answer any two questions. **(2 x 10 = 20 Marks)**

11. Explain the Good Agricultural practices in cultivation of Medicinal plants.
12. Elaborate the health benefits and role of Nutraceuticals in management of Diabetes.
13. List the skin care products. Explain the raw materials of herbal origin used in skin care products.

PART - C

Note: Answer any seven questions. **(7 x 5 = 35 Marks)**

14. Define the term patent. Give its objectives and criteria for patent award.
15. What are the objectives of Schedule T. Write a note on Infrastructural requirements?
16. Write a note on patenting aspects of Traditional knowledge.
17. Classify the Excipients. Write the advantages and disadvantages of herbal Excipients.
18. Explain the Curcumin case study.
19. Give an informative note on scope and future prospects of Herbal Industry.
20. Write the health benefits of Spirulina and Honey.
21. Describe the role of colorants. Elaborate different colorants of natural origin.
22. Give the sources and sode effects and interactions of Hypercium.

******